Revista ARACÊ
ISSN: 2358-2472

ROLE OF THE STATE AS AN ENABLER OF HEALTH 5.0 TO ENSURE EFFECTIVE INSTITUTIONS

https://doi.org/10.56238/arev6n4-072

Submitted on: 11/05/2024 **Publication Date:** 12/05/2024

Amanda Calzi Roldi[1], Andréia Barboza Pastor[2], Rodrigo Scoassante Tavares[3], Lyvia Elena Klawa Cau[4], Geovanna Vermelho da Silva[5] and Fabiana Rosa Neves Smiderle[6].

ABSTRACT

The study addresses the importance of the State in the promotion of Health 5.0, which integrates technologies such as artificial intelligence and big data to improve the efficiency and accessibility of health services. Bearing in mind that it is important to understand the role of the State as a facilitator for the implementation of health 5.0, for the modernization of health institutions, reduction of inequalities and promotion of local and national development. The objectives of the research include analyzing the state's performance in the promotion of Health 5.0, identifying relevant public policies, and investigating the effects of these policies on the effectiveness of health services. The method used was the integrative literature review, the search for studies was carried out between January 2019 and April 2024 in the LILACS, MEDLINE/PubMed, and Scielo databases, using descriptors related to health technology, public policies, and hospital administration, with Boolean operators. The results indicate that the State can act as an enabler of Health 5.0 through public policies and technological innovations, improving hospital efficiency, in the Brazilian context, where an integrative approach is important. Despite success in some cases, challenges such as resistance to change and lack of resources still persist. It is concluded that public policies and technological innovations are crucial to increase hospital

[1] Nurse, Master's student in Public Policy and Local Development,
Emescam
roldiamanda@hotmail.com,
ORCID: https://orcid.org/0009-0007-9894-0939
LATTES: https://lattes.cnpq.br/0724386660498344
[2] Master's student in public policy and local development
Emescam
LATTES: https://lattes.cnpq.br/0598311148794462
Email: andreia.pastor@hotmail.com
[3] Pediatric Surgeon, Master's student in public policies and local development,
Emescam
ORCID: 0009-0004-4365-5936
E-mail: rodrigo.st.tavares@gmail.com
[4] Undergraduate Nursing
Emescam
ORCID: https://orcid.org/0009-0009-7654-0963
Email: klawalyvia@yahoo.com
[5] Undergraduate Nursing - Emescam
ORCID: 0009-0002-6343-2188
E-mail: geovannavdsilva18@gmail.com
[6] Dr. in Child Health
PUC- Rio Grande do Sul
ORCID: https://orcid.org/0000-0001-5624-6673
LATTES: http://lattes.cnpq.br/7799566924896632
E-mail: Fabiana.Neves@emescam.br

Revista ARACÊ
ISSN: 2358-2472

effectiveness, recommending future studies on the practical implementation of these policies in various regional contexts and their impact on the quality of health services.

Keywords: Health technology. Technology. Public health. Hospital administration. Hospital management.

Revista ARACÊ
ISSN: 2358-2472

INTRODUCTION

It is known that health 5.0 brings a revolution to the health area, that is, it makes a paradigm shift in traditional health systems, allowing intelligent mechanisms to perform and assist in the diagnosis and control of diseases, virtual health care, assistance in the information cloud, aid in decision-making in medical care and medicine with more precision. According to Gomathi, Mishra and Tyagi; (2024), the impact of industry 5.0 on the health sector represents a breakthrough in manufacturing and production, combining human intelligence and skills with cutting-edge technology, emphasizing the harmonious integration between humans, machines, and technologies seeking to improve health care. In addition, the technologies used include artificial intelligence (AI), blockchain, big data analytics, and robotics.

With the increase in demand for better health outcomes, medical care has been changing over time. Healthcare 5.0 is the most recent stage of this evolution, which is characterized by the incorporation of various technologies and methodologies to achieve individualized and patient-centered care. However, healthcare 5.0 emerges as the subsequent frontier in the progression of artificial intelligence in the healthcare industry, leveraging sophisticated technologies like quantum computing, augmented reality, and biotechnology to offer remarkable opportunities and tackle distinct hurdles. (Date; Thalor, 2023).

According to Giustina and Gallo (2021), the pandemic has had an impact on health and the global economy, causing changes in health and society. In this context, the role of the state in the promotion and implementation of Health 5.0 becomes essential. In addition, it is necessary to continuously improve public health policies to better meet the needs of the population and integrate the emerging technologies that characterize this new era of health. In addition, it is known that health 5.0 offers opportunities and challenges for the health system. However, adopting these technologies will require a balance between innovation and implementing security and regulatory measures appropriately. Thus, health institutions will need to be ready to invest in infrastructure and training.

However, health 5.0 highlights the importance of integrating technology, medicine, and patient-centered care. The State has an important role in the creation of health policies. In Brazil, the analysis of state health policies reveals how the State can promote economic and social development through initiatives in the area of health. This analysis offers insight into the interplay between Health 5.0 advances, state interventions, and their impact on

Revista ARACÊ
ISSN: 2358-2472

public health outcomes. Pessoto, Ribeiro and Guimarães (2015) point out that, despite the pressure of the globalized market, the Brazilian State can develop alternatives to foster and direct economic and social development through health policies.

Undoubtedly, the evolution of Health 5.0 represents a great advance in the integration of emerging technologies in the health system, and the role of the state is vital so that more effective health institutions can be achieved. The implementation of public policies is important for this progress, starting with the creation of solid regulatory frameworks.

In Brazil, the National Policy on Health Technology Management (PNGTS) can be an example, published in 2009, which is structured around the concept of Health Technology Assessment (HTA) for decision-making (Silva et al., 2024). This policy establishes a basis for the inclusion of innovative technologies in the Unified Health System (SUS).

The justification for this research is directly related to the social relevance of the theme: "The role of the State as an enabler of Health 5.0 to guarantee effective institutions" is undoubtedly of great importance for improving health promotion, but it demonstrates challenges to be met. Health 5.0 represents a technological evolution that integrates artificial intelligence, the internet of things, big data, robotics, and other innovations to improve the delivery of health services. In the face of health crises such as the COVID-19 pandemic, the need for more resilient, efficient, and accessible health systems has become evident.

In this scenario, the role of the State as an enabler of these innovations is important, as it involves the creation and implementation of public policies that foster the development and adoption of these technologies. Effective public policies can ensure not only the modernization of health institutions, but also the democratization of access, reducing social and economic inequalities. In addition, the state's investment in technological infrastructure and training of trained professionals can generate positive impacts on the economy, promoting local and national development.

Therefore, this study has political, economic and social relevance, bringing important issues for the improvement of the population's quality of life and for the sustainability of health systems. The academic contribution of this theme to the area of public policies and local development is identified where we began to carry out the investigation on the role of the State in the promotion of Health 5.0, which enriches the theoretical field of public policies, but also offers practical subsidies for the elaboration and implementation of more effective strategies.

Revista ARACÊ
ISSN: 2358-2472

Thus, the objective of this study is to analyze the role of the State as a facilitator in the promotion of Health 5.0, focusing on the effectiveness of health institutions. It seeks to understand how the State acts to promote this new era of health. It will also investigate what barriers and challenges the State faces when promoting Health 5.0, as well as the strategies used to overcome them, offering a comprehensive view of the impact of these policies on the modernization of the health sector.

METHODOLOGY

This study refers to an integrative review, which aims to gather and synthesize the results of scientific publications related to the role of the state as an enabler of health 5.0 to ensure effective institutions. (Souza, Silva and Carvalho, 2010), state that due to the large amount and complexity of information in the health area, it is necessary to develop ways to provide the best use of the evidence elucidated in numerous studies. Therefore, integrative review emerges as a methodology that provides the synthesis of knowledge and the incorporation of applicability. Thus, it seeks to answer the following question: How is the role of the State configured as an enabler of health 5.0 to guarantee effective institutions

All scientific productions that had, in their content, hospital management, the use of technology as a precursor of efficacy, and the role of the State were considered. Articles published from 2019 to April 2024 were included, as they date from the last five years; in English, Portuguese or Spanish; and, regardless of design and methodological quality. The exclusion criteria adopted were abstracts published in journals or annals of events, theses and dissertations, review studies, and those repeated in the explored databases.

The search for studies was carried out between January 2019 and April 2024, in the electronic databases of Latin American and Caribbean Literature on Health Sciences (LILACS), Medical Literature Analysis and Retrieval System Online (MEDLINE/PubMed) and Scielo.

The search strategy used was based on the combination of the following descriptors, and the *Boolean operators*, as shown in the following table.

The search strategies used are shown in the table below:

Chart 2 – Search strategy: Integrative Review

Identification	Described
D1	("Health technology" OR Technology) AND ("Public Policy" OR "Public Health") AND ("Hospital Administration" OR "Hospital Management")
D2	("Biomedical technology" OR "Technology") AND ("Public Policy" OR "Public Health") AND ("hospital Administration")

Revista ARACÊ
ISSN: 2358-2472

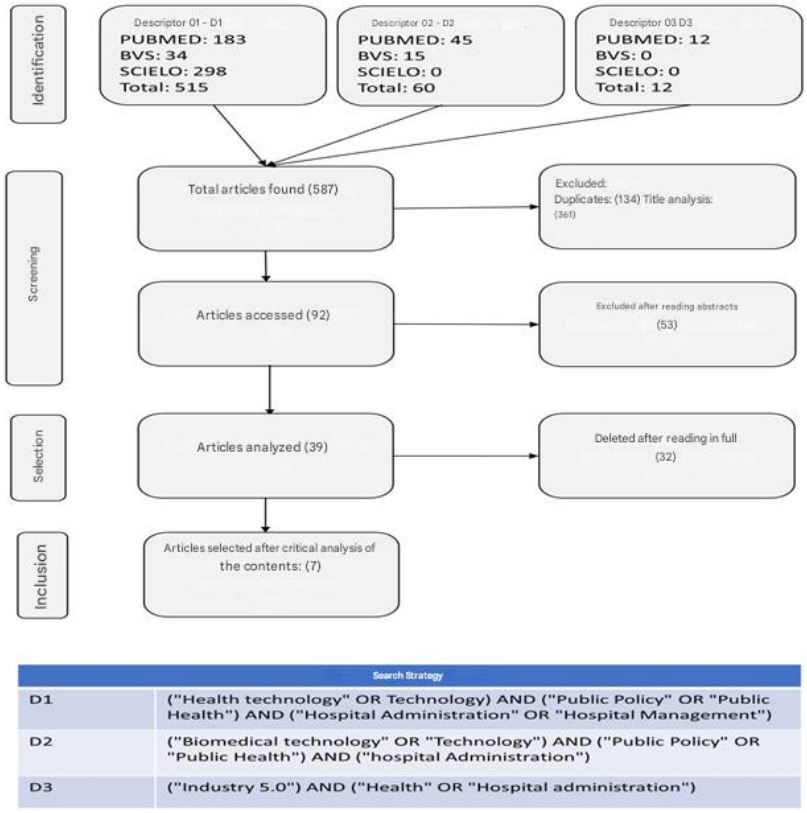
D3	("Industry 5.0") AND ("Health" OR "Hospital administration")

Source: Prepared by the author (2024).

RESULTS

A total of 587 publications were found in the databases, 298 of which originated from the SCIELO, LILACS 49 and 240 MEDLINE/PubMed databases. After deleting the duplicate studies in the database, a total of 92 publications were published to be evaluated, following the defined parameters. Of these, 7 studies demonstrated that they met the inclusion criteria, as well as having the necessary elements to answer the proposed guiding question. The entire selection process that resulted in their inclusion is presented in the following flowchart (Figure 1).

Figure 1: Prism Flowchart



Search Strategy	
D1	("Health technology" OR Technology) AND ("Public Policy" OR "Public Health") AND ("Hospital Administration" OR "Hospital Management")
D2	("Biomedical technology" OR "Technology") AND ("Public Policy" OR "Public Health") AND ("hospital Administration")
D3	("Industry 5.0") AND ("Health" OR "Hospital administration")

A total of 587 publications were found in the databases, 298 of which originated from the SCIELO, LILACS 49 and 240 MEDLINE/PubMed databases. After deleting the duplicate studies in the database, a total of 92 publications were published to be evaluated, following the defined parameters. Of these, 7 studies demonstrated that they met the

Revista ARACÊ
ISSN: 2358-2472

inclusion criteria, as well as having the necessary elements to answer the proposed guiding question. The entire selection process that resulted in their inclusion is presented in the following flowchart (Figure 1).

When analyzing the characteristics of the studies selected for this review, it was observed that the articles were predominantly published in 2023 (n=03), followed by 2022 (n=01), 2021 (n=01), 2020 (n=01) and 2019 (n=01). Most of the studies (n=07) brought in their content discussions that reflected the use of health 5.0 in the reality of the execution of the use at the level of the Brazilian and international context.

The results of this study are presented in a table, accompanied by an analysis of the data obtained. Data collection used an instrument developed specifically for this purpose, containing the following variables: identification: author, year, location, objectives, type of study, results, conclusion, as shown in Table 1.

Table 1. Characterization of the articles of the synthesis.

IDENTIFICATION: AUTHOR /YEAR, LOCATION	OBJECTIVES/ TYPE OF STUDY	RESULTS/CONCLUSION
(Xinliang Liu et al, 2023) Location: Hubei, China Doi: 10.1177/00469580231190576	This study aimed to measure the productivity and relative efficiency of traditional Chinese medicine tertiary public hospitals in Hubei province/ The Bootstrap-Malmquist-DEA model was employed to measure productivity and efficiency.	A small number of TCM tertiary public hospitals demonstrated poor or deficient technical efficiency. It is suggested that priority be given to the utilization of health resources, performance evaluation, strengthening of the information system, and internal management of the hospital to increase technical efficiency. Traditional Chinese medicine hospitals need to focus on technological innovation, thereby improving technological progress.
(Zhang et al,2023) https://doi.org/10.3389/fpubh.2023.1219407 Local: China	Recently, in order to comprehensively promote the development of medical institutions and solve the national problems in the fields of health, the government of China has developed an innovative national policy of building "Trinity" smart hospitals	In these hospitals, benefiting from advanced construction concepts and the active application of new technologies, historic phased progress in medical treatment, service and management has emerged. Specific performances included increasing work efficiency and accuracy, improving patient satisfaction and outcomes, and increasing management power, which comprehensively improved the high-quality development of hospitals
(Mussi et al, 2021) DOI: 10.3390/ijerph20216971 Location: Santa Catarina, Rio Grande do Sul.	This article analyzes the process and results of the large-scale implementation of a hospital information system for the management of Brazilian university hospitals/qualitative approach	We argue here that to maximize the potential of information technology in health on a large scale, an integrative and cooperative vision is needed, along with a high capacity for change management, considering the different regional, local and institutional contexts.

Revista ARACÊ
ISSN: 2358-2472

(Zapata, 2019). Doi:10.15446/rsap.V21n2.75062 Location: Bogota	To determine and compare the contextual elements and factors that can favor the achievement of accreditation of public and private health hospitals/ Based on a source study of cases and controls carried out in medium and high complexity hospitals in Colombia.	There are differences in elements and contextual factors between public and private hospitals that may favor the latter in obtaining health accreditation. Information systems have become the most important tool for the dynamics of the globalized world and are essential to improve the performance of organizations and professionals in the health sector. Its absence or defect can ruin initiatives that seek to improve patient care and organizational improvement. The authors described how the availability and functionality of information systems and technologies can facilitate efficiency in data collection and improve the effectiveness of quality improvement interventions.
(Krüger; Sobierański; Moraes, 2020) Doi.org/10.1590/1982-02592020v23n1p152 Location: Florianópolis - Santa Catarina	This study shows the process of resistance to the assimilation of the management of the University Hospital (HU) of the Federal University of Santa Catarina (UFSC) by the Brazilian Company of Hospital Services (EBSERH), as well as reports the first years of this experience	The text points out that the promises of the Contract of the Federal University of Santa Catarina and the Brazilian Company of Hospital Services have not been able to be fulfilled due to political, economic and administrative impediments since 2016, resulting in the very small expansion of beds and services, the staff, the technological park, implications that affect the purpose of the teaching hospital and SUS care.
(Mi, Dezhi. et aL, 2023) DOI: 10.3389/fpubh.2023.1182329 Local: Sangai, China	To address the challenges posed by the COVID-19 pandemic, our hospital developed a smart hospital management mode specifically tailored to COVID-19 patients/ This study included patients with a confirmed diagnosis of COVID-19 admitted to our hospital between January 2020 and December 2022/ This retrospective cohort study was conducted on COVID-19 patients admitted to our hospital between January 2020 and December 2022.	Developing an intelligent management mode can reduce the burden on medical personnel and the likelihood of developing infection, and provide better and timely patient care. Smart management can play a key role in controlling the epidemic, treating patients, allocating resources, tracing the root cause of the virus, and monitoring.
(Welchen et al 2022) DOI: 10.1108/RAUSP-02-2021-0023 Location: São Paulo	The objective of this article is to validate and measure the global assessment of the electronic medical record (EHR) and to identify the factors that influence the assessment of health information systems (SIS) in Brazil./ This study interviewed 262 physicians and nurses who work in hospitals and	The results showed adequate validity and reliability, validating NuHISS in the Brazilian context. The survey showed that 38.9% of users rated the system as high quality. Technical quality, ease of use, and benefits explained 43.5% of the overall user evaluation of the system. In addition, the government can create and develop actions to improve existing tools to support health professionals. Social implications From the validation of the scale, public managers were able to monitor and develop actions to promote the usability of the system, especially the technical

Revista ARACÊ
ISSN: 2358-2472

	use EHR in their workplace. This study validated the National HIS Usability-Focused Scale (NuHISS) to measure usability in the Brazilian context.	qualities of the system – a factor that impacted the overall evaluation of the system

DISCUSSION

The results of this study indicate that the State plays an important role as an enabler of Health 5.0, through public policies that encourage the adoption of technological innovations in hospitals and health institutions. This role ranges from creating a favorable regulatory environment to providing financial and logistical support for the implementation of emerging technologies such as artificial intelligence and big data. This view is supported by the studies by Zhang et al. (2023) and Gomathi, Mishra, and Tyagi (2024), which show how well-structured public policies in China have facilitated the construction of smart hospitals, improving the accuracy of treatments and patient satisfaction. Compared to Brazil, it is verified that the context and available resources vary, and the need for an integrative approach adapted to regional characteristics persists.

In the Brazilian context, Mussi et al. (2021) highlight that the expansion of information technology on a large scale requires a cooperative governance approach, in which managers at different levels work in synergy. This model aims to overcome challenges related to institutional resistance and lack of infrastructure, promoting management that adapts to local and regional conditions. The importance of this integration for the success of Health 5.0 is corroborated by the findings of Zapata-Vanegas (2019), which show how the Colombian hospital accreditation system depends on the efficiency of information systems to optimize care and monitor quality. Thus, the implementation of technologies in Brazil could benefit from a cooperative adaptation, focusing both on technical effectiveness and on administrative and regionalized support.

Ruotsalainen and Blobel (2020) emphasize the importance of establishing a solid ethical framework to ensure that personal health data is protected from inappropriate use and unauthorized exposure. However, the growing tendency for companies to view health information as "new oil" exacerbates privacy challenges, especially when this information is collected and shared without proper control (McGinty et al., 2024). So that the ecosystem of transition to Health 5.0 faces challenges, such as resistance to change and lack of

Revista ARACÊ
ISSN: 2358-2472

coordination between different levels of government, which compromises the full integration of technologies (Krüger, Sobieranski & Moraes, 2020).

However, effective public policies must consider regional contexts and local needs to promote cultural and administrative adaptation. For example, the Chinese experience with the "Trinity" smart hospital construction policy has demonstrated that adapting public policies can improve the accuracy of treatments and increase patient satisfaction (Zhang et al., 2023). This example reinforces the importance that, in Brazil, Health 5.0 policies are designed with flexibility to meet different regional needs, maximizing the impact of these innovations.

Resistance to corporate management and the introduction of new technologies, as observed in the study by Krüger, Sobieranski, and Moraes (2020), demonstrates the political and administrative challenges that Brazil faces. The transition to management by the Brazilian Company of Hospital Services (EBSERH) highlighted the complexity of the public hospital scenario and the limitations imposed by political and economic barriers. This example illustrates the need for public policies that consider these aspects to avoid resistance and promote a smoother transition, in line with the objectives of Health 5.0.

The experience of the COVID-19 pandemic reinforces the importance of smart hospital management systems. The study by Mi Dezhi et al. (2023) in Shanghai, China, demonstrates that by adopting a smart hospital model, it was possible to improve care and reduce the burden on healthcare professionals, as well as decrease hospital infection rates. These results reinforce that the implementation of advanced technologies can be an important enabler during health crises, as long as it is supported by an adequate management structure. Applied to Brazil, this example suggests that, in future crises, a smart and coordinated hospital structure could increase the resilience of the health system.

In Brazil, Welchen et al. (2022) validated the National HIS Usability-Focused Scale (Nu-HISS), identifying that technical quality, ease of use, and perceived benefits are important for a positive evaluation of health information systems by professionals. From these findings, it is noted the need to develop information systems that are not only technically efficient, but also easy to use, allowing health professionals to use these tools effectively. This author's recommendation suggests that the government can create training programs and improve digital tools to ensure that the adoption of Health 5.0 is successful.

Public policies also play a vital role in ensuring ethical and responsible adoption of emerging technologies. Bavli and Galea (2024) emphasize that the implementation of AI

Revista ARACÊ
ISSN: 2358-2472

and big data must consider strict ethical guidelines in order to ensure patient safety and privacy. Without adequate policies, the incorporation of these technologies risks fragmentation, compromising the effectiveness of interventions and creating gaps in health coverage. During the pandemic, flexible and adaptable policies have shown themselves to be for the rapid adoption of technologies in response to a crisis. This example reinforces the need for public policies that can support rapid innovations, as highlighted by the WHO, which recommends government incentives for the digital training of health professionals and the creation of a favorable environment for the continuous development of skills (Wong et al., 2021).

Although the findings of this review indicate that the State can be an effective enabler of Health 5.0, it was also identified that the implementation of technologies faces obstacles, such as the lack of infrastructure in certain regions and organizational resistance. The complexity of resource management and the need for political and cultural adaptation are points that deserve attention in future studies. It is suggested that case research be carried out in different regional contexts in Brazil to assess how public policies can be applied effectively in different realities.

The results of this review indicate that the State, through public policies and investments in technological infrastructure, can facilitate the implementation of Health 5.0 and improve the effectiveness of hospital services. However, barriers such as institutional resistance and financial limitations still pose challenges, especially in contexts of low infrastructure. For successful adoption, it will be important to develop integrative policies that involve collaboration between diverse sectors and consider regional particularities. Ultimately, an integrated and cooperative approach may be the key to ensuring that Health 5.0 brings real and lasting improvements in the health system.

CONCLUSION

It is concluded that the results obtained evidenced the importance of the State in the implementation of public policies that promote Health 5.0. In addition to the adoption of technological innovations, it has been shown to be important to improve technical efficiency in hospitals, resulting in advances in hospital management and patient satisfaction.

In Brazil, the need for an integrative conduct to enhance hospital information systems was highlighted, while the experience of the COVID-19 pandemic demonstrated the effectiveness of intelligent hospital management. Despite the advances, important

Revista ARACÊ
ISSN: 2358-2472

challenges, such as resistance to change and lack of coordination between different levels of government, still persist, requiring continuous attention to overcome them.

The continuing education of health professionals, through technological education programs, is important for these innovations to be understood and applied effectively. Training and the development of digital skills among managers and health professionals contribute to a better adaptation to technological changes, promoting a more efficient and collaborative hospital environment.

In summary, the study also suggests that the integrative and cooperative approach may be the key to overcoming the challenges identified. However, some limitations were found, such as the difficulty of accessing updated data and the variability in the quality of the sources analyzed. Therefore, for future work, it is suggested that more detailed research be carried out on the practical implementation of Health 5.0 policies in different regional contexts, as well as the impact of these technologies on equity and quality of health services. In addition, some studies could bring a deeper insight into the long-term effects of technological innovations on public health.

ACKNOWLEDGMENTS

We would like to thank the Espírito Santo Foundation for Research and Innovation – FAPES, for the financial support for the publication of this article, through the public notice 04/2022- Fapes- Proapem.

Revista ARACÊ
ISSN: 2358-2472

REFERENCES

1. Bavli, I.; Galea, S. Principais considerações na adoção de Inteligência Artificial em saúde pública. PLOS Digital Health, v. 3, n. 7, p. e0000540, 2024. Available at: https://doi.org/10.1371/journal.pdig.0000540. Accessed: Nov 6, 2024.

2. Date, S.Y.; Thalor, M. AI in Healthcare 5.0: opportunities and challenges. International Journal of Educational and Psychological Sciences, v. 1, n. 21, p. 297-300, 2023. DOI: https://doi.org/10.59890/ijeps.v1i4.910. Available at: https://journal.multitechpublisher.com/index.php/ijeps. Accessed: Jul 19, 2024.

3. Giustina, T.B.d.A.D.; Gallo, J.H.d.S.; Nunes, R. As políticas públicas, a autonomia, a interculturalidade e as discussões bioéticas. Revista Bioética, v. 29, n. 3, p. 455-458, 2021.

4. Gomathi, L.; Mishra, A.K.; Tyagi, A.K. Indústria 5.0 para a saúde 5.0: oportunidades, desafios e possibilidades futuras de pesquisa. In: International Conference on Trends in Electronics and Informatics (ICOEI), 7., 2023. Anais [...]. IEEE, 2023. p. 204-213.

5. Krüger, T.R.; Sobieranski, C.B.; Moraes, B.V.d. Uma empresa gestora do hospital universitário: da resistência à gestão corporativa. Revista Katálysis, v. 1, p. 152, 2020.

6. Liu, X. et al. Medindo a produtividade e a eficiência relativa de hospitais públicos terciários de medicina tradicional chinesa em Hubei, China. INQUIRY: The Journal of Health Care Organization, Provision, and Financing, v. 00469580231190576, 2023.

7. McGinty, E.E. et al. Scaling interventions to manage chronic disease: innovative methods at the intersection of health policy research and implementation science. Prevention Science, v. 25, n. Suppl 1, p. 96-108, 2024.

8. Mi, D. et al. Exploring intelligent hospital management mode based on artificial intelligence. Frontiers in Public Health, v. 11, p. 1182329, 2023.

9. Mussi, C.C. et al. Desafios de iniciativas governamentais de implementação em ampla escala de sistemas de informação em saúde. Informação & Informação, v. 27, n. 4, p. 456–486, Sep 14, 2023. Available at: https://ojs.uel.br/revistas/uel/index.php/informacao/article/view/47289.

10. Pessoto, U.C.; Ribeiro, E.A.W.; Guimarães, R.B. O papel do Estado nas políticas públicas de saúde: um panorama sobre o debate do conceito de Estado e o caso brasileiro. Saúde e Sociedade, v. 24, p. 9-22, 2015.

11. Ruotsalainen, P.; Blobel, B. Health information systems in the digital health ecosystem—problems and solutions for ethics, trust and privacy. International Journal of Environmental Research and Public Health, v. 17, n. 9, p. 3006, 2020.

12. Silva, S.N. et al. Implementation of health technologies in Brazil: analysis of federal guidelines for the public health system. Ciência & Saúde Coletiva, v. 29, p. e00322023, 2024.

Revista ARACÊ
ISSN: 2358-2472

13. Souza, M.T.d.; Silva, M.D.d.; Carvalho, R.d. Integrative review: what is it? How to do it? Einstein (São Paulo), v. 8, n. 1, p. 102–106, Mar 2010. Available at: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S167945082010000100102&lng=en&tlng=en.

14. Welchen, V. et al. Percepção de usabilidade dos sistemas de informação em saúde no Brasil: a visão dos profissionais de saúde hospitalares sobre o prontuário eletrônico. Revista de Gestão RAUSP, v. 57, p. 264-279, 2022.

15. Wong, B.L.H. et al. Harnessing the digital potential of the next generation of health professionals. Human Resources for Health, v. 19, p. 50, 2021. Available at: https://doi.org/10.1186/s12960-021-00591-2. Accessed: Nov 6, 2024.

16. Zapata-Vanegas, M.A. Comparative analysis of context factors for the accreditation of public and private hospitals in Colombia. Revista de Salud Pública, v. 21, n. 2, p. 168–174, 2019.

17. Zhang, G.W. et al. The “Trinity” smart hospital construction policy promotes the development of hospitals and health management in China. Frontiers in Public Health, v. 11, p. 1219407, 2023.